

IT IS CLAIMED

1. A device (10) for applying an adhesive tape, comprising a holding mechanism (12) for holding an adhesive tape having an adhesive surface and a back surface opposite to the adhesive surface in a state where the adhesive surface faces outward, the adhesive tape being provided with a profile coinciding with a profile of an objective surface area to which the adhesive tape is adhered, and a pressing mechanism (14) for pressing the adhesive tape held by said holding mechanism (12) onto the objective surface area;

wherein said holding mechanism (12) includes a suction member (18) provided with an elastic holding surface (16) capable of making contact with the back surface of the adhesive tape, a base member (20) supporting said suction member (18) shiftably in parallel displacement in a pressing direction transverse to said holding surface (16), and a vacuum source (22) connected to said suction member (18) and capable of generating a negative pressure adjacent to said holding surface (16) to make said holding surface (16) suck and hold the adhesive tape; and

wherein said pressing mechanism (14) includes a drive section (24) for shifting said suction member (18) in parallel displacement in said pressing direction relative to said base member (20), to press said adhesive surface of the adhesive tape held by suction on said holding surface (16) onto the objective surface area.

2. A device (10) for applying an adhesive tape, as defined by claim 1, wherein said suction member (18) includes an elastic wall (28) provided with said holding surface (16) and a through-hole opening in said holding surface (16), a negative pressure chamber (30) formed adjacent to said elastic wall (28) at a side opposite to said holding surface (16), communicated with said holding surface (16) via said through-hole and connected to said vacuum source (22), and an elastic column (32) supporting said elastic wall (28).

3. A device (10) for applying an adhesive tape, as defined by claim 2, wherein said negative pressure chamber (30) includes a plurality of negative pressure regions (46) formed separately from each other, individually communicated with said holding surface (16) and individually connected to said vacuum source (22), each of said negative pressure regions (46) being provided with said elastic column (32).

4. A device (10) for applying an adhesive tape, as defined by claim 3, wherein said suction member (18) includes a plurality of suction blocks (50) formed separately from each other, respectively having said negative pressure regions (46) and being
5 combined with each other, said suction blocks (50) being respectively provided with holding surface regions (54) cooperating with each other to define said holding surface (16).

5. A device (10) for applying an adhesive tape, as defined by claim 4, wherein
10 said plurality of suction blocks (50) are supported on said base member (20) of said holding mechanism (12) in a cooperative arrangement in which said holding surface regions (54) are adjacent to each other and capable of making contact almost entirely with the back surface of the adhesive tape, and wherein said drive section (24) of said pressing mechanism (14) shifts said plurality of suction blocks (50) synchronously in said pressing
15 direction transverse to each of said holding surface regions (54) relative to said base member (20).

6. A device (10) for applying an adhesive tape, as defined by claim 4 or 5, wherein said holding mechanism (12) further includes an intermediate support member
20 (68) for fixedly supporting said plurality of suction blocks (50) and shiftably held on said base member (20), and wherein said pressing mechanism (14) further includes a guide member for guiding said intermediate support member (68) in said pressing direction on said base member (20) during an operation of said drive section (24).

7. A device (10) for applying an adhesive tape, as defined by any one of
25 claims 3 to 6, wherein said vacuum source (22) includes a plurality of vacuum generators (48) independent from each other, individually connected to said plurality of negative pressure regions (46).

8. A device (10) for applying an adhesive tape, as defined by any one of
30 claims 1 to 7, wherein said holding surface (16) of said suction member (18) is constituted as a flat surface or a curved surface, substantially free of twist and step as a whole.

9. A device (10) for applying an adhesive tape, as defined by any one of claims 1 to 8, further comprising a positioning mechanism (86) for positioning said holding mechanism (12) at a predetermined adhering-preparation position in the objective surface area, wherein said positioning mechanism (86) includes a first engagement member (88) fixedly held on said base member (20), a second engagement member (90) movably held on said base member (20), and a drive element (92) for moving said second engagement member (90) relative to said base member (20); said first and second engagement members (88,90) being fixedly engaged with an article having the objective surface area, under a driving operation of said drive element (92), to locate said suction member (18) to said adhering-preparation position.